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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) Conf. No.: 9998
Edward L. Carver) Group Art Unit: 1743
Serial No.: 09/039,789) Examiner: A. Soderquist
Filed: March 16, 1998) Docket No. 116310.0030

For: **APPARATUS FOR MAKING A PLURALITY OF
REAGENT MIXTURES AND ANALYZING PARTICLE
DISTRIBUTIONS OF THE REAGENT MIXTURES**

Dated at Hartford, Connecticut this 24th day of March, 2004

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APPELLANT'S APPEAL BRIEF

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APPENDIX

Pending Claims



I. INTRODUCTION

In accordance with the provisions of 35 U.S.C. § 134 and 37 C.F.R. §§ 1.191 and 1.192, this Appeal Brief is submitted in triplicate in support of the appeal from the Office Action dated March 24, 2003 and the Advisory Action dated August 14, 2003, finally rejecting claims 27-30, 32-35, 38 and 40-46.

A. Real Party In Interest

Appellants have assigned their interests in the subject application to CDC Technologies, Inc. by an assignment executed on January 20, 1993.

B. Related Appeals and Interferences

None.

II. STATUS OF THE CLAIMS

A. Status of Pending Claims

Claims 27-30, 32-35, 38 and 40-46 pending in this application, and have been finally rejected under 35 U.S.C. § 112, first paragraph, and each of these claims are on appeal.

B. Status of Canceled Claims

The subject application, U.S. Patent Application Serial No. 09/039,789, was filed on March 16, 1998, as a continuation of U.S. Patent Application Serial No. 08/370,023, now U.S. Patent No. 5,728,351, which, in turn, was a division of U.S. Patent Application Serial No. 08/007,111, now U.S. Patent No. 5,380,491. The subject application was filed with twenty-six (26) claims, namely claims 1-26.

In a Preliminary Amendment, dated March 16, 1998, original claims 1-26 were canceled, without prejudice, and new claims 27-35 were added. In an Amendment dated February 29, 2000, claims 36-39 were added. In an Amendment dated August 14, 2000, claims 36, 37 and 39 were canceled without prejudice. In an Amendment dated June 14, 2001, claim 31 was canceled without prejudice. Thus, the following claims have been canceled, without prejudice, during prosecution of the subject application and are not on appeal herein: claims 1-26, 31, 36, 37 and 39.

III. STATUS OF THE AMENDMENTS

In an Office Action dated April 13, 2000, claims 27-39 were finally rejected. Appellant responded to the Office Action (Final Rejection) in an Amendment under 37 C.F.R. § 1.116 filed August 14, 2000 amending claims 27, 35 and 38 and canceling claims 36, 37 and 39. In an Amendment dated June 14, 2001, claims 27-29, 32, 35 and 38 were amended, and new claims 40-46 were added. In the Office Action dated April 11, 2002, misnumbered claims 39-45 were renumbered by Examiner's amendment as claims 40-46.

IV. SUMMARY OF THE CLAIMED INVENTION

Appellant's claimed invention is directed to a multi-species blood testing method and apparatus for making a plurality of different reagent mixtures. In one embodiment of the present invention, and as illustrated in FIG. 1, an apparatus (10) for making a plurality of reagent mixtures comprising blood, and analyzing the particle distributions of the reagent mixtures, comprises at least one pump. An example of a pump unit (16) usable in accordance with this embodiment of the present invention is described in further detail, e.g., on page 10, line 10 through page 14, line 8 of Appellant's specification as originally filed. Referring

again to FIG. 1, at least one reagent chamber (18 or 19) is coupled in fluid communication with the at least one pump and contains at least one lysing agent. The lysing agent, when mixed with a blood sample, functions, e.g., to sufficiently effect at least a component separation of white blood cells, so that they can be differentiated, and at least one of the white blood cell subpopulations can be quantified (see page 9, lines 2-6 of Appellant's specification). A sensing unit (20) that defines a counting orifice for receiving a reagent mixture and analyzes a particle distribution of the reagent mixture also may be provided (for further details see page 15, line 6 through page 17, line 8).

In accordance with a particular feature of the present invention, the apparatus further comprises means for adjusting the volumetric ratio of blood to the at least one lysing agent for creating a plurality of different reagent mixtures. Each of the different reagent mixtures corresponds to a different operator input indicative of a respective species of blood. The means also controls the at least one pump in response to each operator input, to pump predetermined volumes of blood and the at least one lysing agent in accordance with the blood/lysing agent ratio corresponding to the respective operator input and species of blood. The means further controls the at least one pump to (i) intermix the predetermined volumes of blood and the at least one lysing agent and thereby create the reagent mixture corresponding to the respective operator input, and (ii) introduce the reagent mixture through the counting orifice of the sensing unit to sense a particle distribution of the reagent mixture.

FIG. 1 illustrates an example of such means as the processing and control unit (22). In the illustrated embodiment, the processing and control unit (22) is electrically connected to a keyboard unit (25) and display (24). The processing and control unit (22) controls a valve matrix (14) and a pump unit (16) to control the reagent mixture flow through a mixing cuvette

(13) and a sensing chamber (20). Details concerning the operation of the foregoing devices may be found in Appellant's specification on page 17, line 9, through page 22, line 13. In one particular embodiment, the keyboard unit (25) comprises separate keys for certain species (e.g., a cat and a dog) and another key for other species as described on page 26, lines 6-15.

In another embodiment, a method is presented for making a plurality of different reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, wherein each reagent mixture corresponds to a respective operator input indicative of a respective species of blood. Referring again to FIG. 1, the method may be performed with an apparatus (10) that comprises at least one pump, at least one reagent chamber that contains at least one lysing agent (18 or 19), a sensing unit (20) that defines a counting orifice that receives a reagent mixture and analyzes a particle distribution of the reagent mixture. In addition, the apparatus (10) may include a control unit (22) responsive to each operator input to control the at least one pump to make a respective reagent mixture that has a volumetric ratio of the at least one lysing agent to blood corresponding to the respective operator input and species of blood. Further, the control unit (22) may control the sensing unit to analyze a particle distribution of the reagent mixture. The method comprises the step of adjusting the volumetric ratio of the at least one lysing agent to blood in response to an operator input indicative of a respective species of blood, to correspond to the respective operator input and thereby form a predetermined reagent mixture corresponding to the respective operator input and species of blood. The adjusting step includes: selecting at least one lysing agent corresponding to the respective operator input; pumping with the at least one pump a predetermined volume of the at least one lysing agent corresponding to the respective operator input; pumping with the at least one pump a predetermined volume of blood corresponding to

the respective operator input; intermixing the predetermined volumes of the at least one lysing agent and blood, and in turn creating the predetermined reagent mixture corresponding to the respective operator input; and introducing the predetermined reagent mixture through the counting orifice of the sensing unit and sensing a particle distribution of said reagent mixture.

In a further embodiment, an apparatus (10) is presented for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis is presented. The apparatus (10) comprises at least one reagent chamber containing at least one lysing agent (18 or 19), and at least one pump coupled in fluid communication with the at least one reagent chamber. A control unit (22) may be electrically coupled to the at least one pump to adjust the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input (e.g., via the keyboard unit 25) which, in turn, corresponds to a respective one of the plurality of species. A mixing chamber (e.g., the mixing cuvette 13) may be coupled in fluid communication with the at least one pump to receive the pumped volumes of the respective blood specimen and the at least one lysing agent to create a reagent mixture that has a blood to lysing agent volumetric ratio corresponding to the operator input and a respective species. Accordingly, a plurality of different reagent mixtures may be created that have a plurality of blood to lysing agent volumetric ratios corresponding to a plurality of different operator inputs and respective species. Further, a sensing unit (20) may be provided that defines at least one counting orifice to receive a reagent mixture and analyze a particle distribution of the reagent mixture.

V. ISSUES

The issues raised in the Final Rejection requiring resolution in this Appeal are as follows:

- A. Whether claims 27-30, 32-35, 38 and 40-46 are properly rejected under 35 U.S.C. § 112, first paragraph.

VI. GROUPING OF CLAIMS ON APPEAL

The claims on appeal before the Board of Patent Appeals and Interferences are claims 27-30, 32-35, 38 and 40-46. Claims 27-30 and 32 relate to a method for making a plurality of different reagent mixtures comprising blood and analyzing a particle distribution of the reagent mixtures, wherein each reagent mixture corresponds to a respective operator input indicative of a respective species of blood. Claims 35 and 40 relate to an apparatus for making a plurality of reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures. Claims 38 and 40-46 relate to apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis.

The claims on appeal are set forth in the Appendix, and the independent claims 27, 35, 38 and 41 are set forth below:

27. A method for making a plurality of different reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, wherein each reagent mixture corresponds to a respective operator input indicative of a respective species of blood,

and the method is performed with an apparatus having at least one pump, at least one reagent chamber containing at least one lysing agent, a sensing unit defining a counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture, and a control unit responsive to each operator input to control the at least one pump to make a respective reagent mixture having a volumetric ratio of the at least one lysing agent to blood corresponding to the respective operator input and species of blood, and to further control the sensing unit to analyze a particle distribution of the reagent mixture, the method comprising the following steps:

adjusting the volumetric ratio of the at least one lysing agent to blood, in response to an operator input indicative of a respective species of blood, to correspond to the respective operator input, and thereby form a predetermined reagent mixture corresponding to the respective operator input and species of blood, said adjusting including:

selecting at least one lysing agent corresponding to the respective operator input;

pumping with the at least one pump a predetermined volume of the at least one lysing agent corresponding to the respective operator input;

pumping with the at least one pump a predetermined volume of blood corresponding to the respective operator input;

intermixing the predetermined volumes of the at least one lysing agent and blood, and in turn creating the predetermined reagent mixture corresponding to the respective operator input; and

introducing the predetermined reagent mixture through the counting orifice of the sensing unit and sensing a particle distribution of said reagent mixture.

35. An apparatus for making a plurality of reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, comprising:

at least one pump;

at least one reagent chamber coupled in fluid communication with the at least one pump and containing at least one lysing agent;

a sensing unit defining a counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture; and

means for adjusting the volumetric ratio of blood to the at least one lysing agent for creating a plurality of different reagent mixtures, each corresponding to a respective operator input indicative of at least one respective species of blood, and for controlling the at least one pump in response to each operator input to pump predetermined volumes of blood and the at least one lysing agent in accordance with the blood/lysing agent ratio corresponding to the respective operator input and species of blood, said means further controlling the at least one pump to

(i) intermix the predetermined volumes of blood and the at least one lysing agent and thereby create the reagent mixture corresponding to the respective operator input, and

(ii) introduce the reagent mixture through the counting orifice of the sensing unit for sensing a particle distribution of the reagent mixture.

38. An apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis, comprising:

at least one reagent chamber for containing at least one lysing agent;

at least one pump coupled in fluid communication with the at least one reagent chamber;

a mixing chamber coupled in fluid communication with the at least one pump for receiving the at least one lysing agent and a predetermined volume of a blood specimen corresponding to any one of a plurality of different species;

a control unit electrically coupled to the at least one pump for adjusting the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input corresponding to a respective one of the plurality of species and, in turn, creating a reagent mixture therefrom having a blood to lysing agent volumetric ratio corresponding to the operator input and respective species; and

a sensing unit coupled in fluid communication with the at least one pump and defining at least one counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture.

41. An apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis, comprising:

first means for containing at least one lysing agent;

second means coupled in fluid communication with the first means for pumping the at least one lysing agent;

third means coupled in fluid communication with the second means for receiving the at least one lysing agent and a predetermined volume of a blood specimen corresponding to any one of a plurality of different species;

fourth means electrically coupled to the second means for adjusting the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input corresponding to a respective one of the plurality of species and, in turn, creating a reagent mixture therefrom having a blood to lysing agent volumetric ratio corresponding to the operator input and respective species; and

fifth means coupled in fluid communication with the second means for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture.

Pursuant to 37 C.F.R. § 1.192(c) (7), Appellant hereby groups the pending claims for purposes of appeal as follows:

35 U.S.C. § 112, first paragraph: Rejected claims stand or fall together.

VII. APPELLANT'S ARGUMENTS

The Examiner asserts that the claims, when interpreted as broadly as their terms reasonably allow, require that a single lysing agent be used to lyse the blood of all animal species. It is respectfully submitted that this interpretation of the claims is not correct. Further, when the claims are properly interpreted in accordance with the plain meanings of the words used, they are fully supported by the original specification, and therefore the rejection under 35 U.S.C. § 112, first paragraph, must be reversed.

The Examiner is correct that during examination, the claims must be interpreted as broadly as their terms “reasonably” allow. M.P.E.P. § 2111.01. However, “[t]his means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification.” Id. As set forth in further detail below, none of the currently-

pending claims are properly interpreted to mean that a single lysing agent be used to lyse the blood of all animal species, as asserted by the Examiner.

The Examiner has agreed that the original specification of this application supports a single lysing agent lysing the blood of plural (more than one) species. As acknowledged by the Examiner, in the paragraph spanning pages 8-9 of the present specification, the present disclosure teaches that "predetermined volumes of lysing agent A and/or lysing agent B are aspirated from the lysing chamber 18 and 19, respectively, by the pump unit 16, and injected through the valve matrix 14 into the mixing cuvette 13, along with the blood sample and diluent to formulate the sample/blood reagent mixture, as described further below. " (Emphasis added).

As further acknowledged by the Examiner, the last paragraph on page 27 of the present specification teaches that "[a]s illustrated above, the volume of lyse A and/or the volume of lyse B (and other lyse agents may be added if necessary) can be automatically adjusted and mixed with the blood/diluent mixtures in the mixing cuvette to effect proper separation of blood cells on a species-by-species basis." (Emphasis added). Accordingly, the original specification clearly teaches that one lysing agent can be used to lyse the blood of plural (more than one) species. The claims, when properly interpreted, are no broader in scope than these teachings of the original specification.

The applicable language of independent claim 27 reads as follows:

"A method for making a plurality of different reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, wherein each reagent mixture corresponds to a respective operator input indicative of a respective species of blood, . . . the method comprising the following steps:

adjusting the volumetric ratio of the at least one lysing agent to blood, in response to an operator input indicative of a respective species of blood, to correspond to the respective operator input, and thereby form a predetermined reagent mixture corresponding to the respective operator input and species of blood”

Thus, independent claim 27, when properly interpreted in accordance with the plain meanings of the words used, recites a method of making a plurality of (or more than one) reagent mixtures, wherein each such mixture corresponds to a respective operator input indicative of a respective species of blood. Nowhere does this claim state that one lysing agent must lyse all animal species, as asserted by the Examiner. Rather, this claim contemplates one lysing agent being used to lyse the blood of plural (more than one) species, and therefore is entirely consistent with, and fully supported by the original specification.

Independent claims 35 recites in pertinent part:

“An apparatus for making a plurality of reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, comprising: . . . means for adjusting the volumetric ratio of blood to the at least one lysing agent for creating a plurality of different reagent mixtures, each corresponding to a respective operator input indicative of at least one respective species of blood”

Thus, independent claim 35, when properly interpreted in accordance with the plain meanings of the words used, recites an apparatus for making a plurality of (or more than one) reagent mixtures, and means for adjusting the volumetric ratio of blood to one or more lysing agents for creating plural (or more than one) different reagent mixtures, wherein each such mixture corresponds to a respective operator input indicative of one or more species of blood. Nowhere does this claim state that one lysing agent must lyse all animal species, as asserted

by the Examiner. Rather, this claim contemplates one lysing agent being used to lyse the blood of plural (more than one) species, and therefore is entirely consistent with, and fully supported by the original specification.

Independent claim 38 recites in pertinent part:

An apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis, comprising: . . . a control unit electrically coupled to the at least one pump for adjusting the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input corresponding to a respective one of the plurality of species and, in turn, creating a reagent mixture therefrom having a blood to lysing agent volumetric ratio corresponding to the operator input and respective species”

Similarly, independent claim 41 recites, in pertinent part:

“An apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis, comprising: . . . fourth means electrically coupled to the second means for adjusting the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input corresponding to a respective one of the plurality of species and, in turn, creating a reagent mixture therefrom having a blood to lysing agent volumetric ratio corresponding to the operator input and respective species”

Thus, independent claims 38 and 41, when properly interpreted in accordance with the plain meanings of the words used, each recites an apparatus for making a plurality of (or more than one) reagent mixtures for multi-species (more than one species) hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis.

Further, each claim recites a control unit or other means for adjusting the volumetric ratio of blood to one or more lysing agents for creating a reagent mixture having a blood to lysing agent volumetric ratio corresponding to a respective operator input and species. Nowhere does either of these claims state that one lysing agent must lyse all animal species, as asserted by the Examiner. Rather, each claim contemplates one lysing agent being used to lyse the blood of a respective selected species, and therefore is entirely consistent with, and fully supported by the original specification.

In sum, it is respectfully submitted that the Examiner has not properly interpreted the pending claims, and that none of the pending claims state that one lysing agent must lyse the blood for all animal species, as asserted by the Examiner. Further, when the claims are properly interpreted in accordance with the plain meanings of the words used, as summarized above, the claims are entirely consistent with the disclosure of the original specification as acknowledged by the Examiner.

It is therefore respectfully submitted that claims 27-30, 32-35, 38 and 40-46 are fully supported by the original specification, and that the final rejection of these claims under 35 U.S.C. § 112, first paragraph, should be reversed for at least these reasons.

IX. CONCLUSION

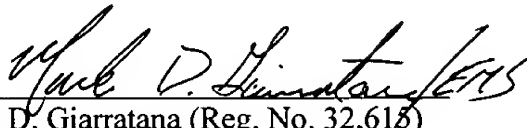
Accordingly, for the foregoing reasons, reversal of the final rejection of Claims 27-30, 32-35, 38 and 40-46 is warranted and issuance of a notice of allowance is earnestly solicited.

No additional fee is believed to be required in connection with this filing. However, if an additional fee is required, or otherwise if necessary to cover any

deficiency in fees already paid, authorization is hereby given to charge our deposit account no. 50-1402.

Respectfully submitted,

Date: March 24, 2004

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APPENDIX

27. A method for making a plurality of different reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, wherein each reagent mixture corresponds to a respective operator input indicative of a respective species of blood, and the method is performed with an apparatus having at least one pump, at least one reagent chamber containing at least one lysing agent, a sensing unit defining a counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture, and a control unit responsive to each operator input to control the at least one pump to make a respective reagent mixture having a volumetric ratio of the at least one lysing agent to blood corresponding to the respective operator input and species of blood, and to further control the sensing unit to analyze a particle distribution of the reagent mixture, the method comprising the following steps:

adjusting the volumetric ratio of the at least one lysing agent to blood, in response to an operator input indicative of a respective species of blood, to correspond to the respective operator input, and thereby form a predetermined reagent mixture corresponding to the respective operator input and species of blood, said adjusting including:

selecting at least one lysing agent corresponding to the respective operator input;

pumping with the at least one pump a predetermined volume of the at least one lysing agent corresponding to the respective operator input;

pumping with the at least one pump a predetermined volume of blood corresponding to the respective operator input;

intermixing the predetermined volumes of the at least one lysing agent and blood, and in turn creating the predetermined reagent mixture corresponding to the respective operator input; and

introducing the predetermined reagent mixture through the counting orifice of the sensing unit and sensing a particle distribution of said reagent mixture.

28. A method as defined in claim 27, further comprising the steps of:

in response to each of a plurality of different operator inputs, selecting the ratio of blood to the at least one lysing agent in the corresponding reagent mixture;

pumping with the at least one pump a predetermined volume of the at least one selected lysing agent corresponding to the respective blood/lysing agent ratio;

pumping with the at least one pump a predetermined volume of blood corresponding to the respective blood/lysing agent ratio; and

intermixing the predetermined volumes of blood and the least one lysing agent, and in turn creating a reagent mixture corresponding to the respective operator input.

29. A method as defined in claim 28, further comprising the steps of:

in response to each of a plurality of operator inputs, selecting the ratio of blood to at least one first lysing agent and at least one second lysing agent in the respective reagent mixture;

pumping with the at least one pump a predetermined volume of the at least one first lysing agent corresponding to the respective blood/lysing agent ratio;

pumping with the at least one pump a predetermined volume of the at least one second lysing agent corresponding to the respective blood/lysing agent ratio;

pumping with the at least one pump a predetermined volume of blood corresponding to the respective blood/lysing agent ratio; and

intermixing the predetermined volumes of blood and the first and second lysing agents, and in turn creating a reagent mixture corresponding to the respective operator input.

30. A method as defined in claim 27, further comprising the steps of:

providing a database comprising data indicative of (i) a plurality of animal species, and (ii) a plurality of different reagent mixtures and the predetermined volumes of the reagent mixture components of each reagent mixture, wherein each reagent mixtures corresponds to one or more of the plurality of animal species;

in response to each operator input corresponding to a respective one of the plurality of animal species, selecting one of the plurality of reagent mixtures corresponding to the respective animal species; and

pumping with the at least one pump the predetermined volumes of the reagent-mixture components, and in turn creating the reagent mixture corresponding to the respective animal species.

32. A method as defined in claim 30, wherein the reagent-mixture components include (i) a predetermined volume of blood, and (ii) a predetermined volume of diluent.

35. An apparatus for making a plurality of reagent mixtures comprising blood and analyzing particle distributions of the reagent mixtures, comprising:

at least one pump;

at least one reagent chamber coupled in fluid communication with the at least one pump and containing at least one lysing agent;

a sensing unit defining a counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture; and

means for adjusting the volumetric ratio of blood to the at least one lysing agent for creating a plurality of different reagent mixtures, each corresponding to a respective operator input indicative of at least one respective species of blood, and for controlling the at least one pump in response to each operator input to pump predetermined volumes of blood and the at least one lysing agent in accordance with the blood/lysing agent ratio corresponding to the respective operator input and species of blood, said means further controlling the at least one pump to

(i) intermix the predetermined volumes of blood and the at least one lysing agent and thereby create the reagent mixture corresponding to the respective operator input, and

(ii) introduce the reagent mixture through the counting orifice of the sensing unit for sensing a particle distribution of the reagent mixture.

38. An apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis, comprising:

at least one reagent chamber for containing at least one lysing agent;

at least one pump coupled in fluid communication with the at least one reagent chamber;

a mixing chamber coupled in fluid communication with the at least one pump for receiving the at least one lysing agent and a predetermined volume of a blood specimen corresponding to any one of a plurality of different species;

a control unit electrically coupled to the at least one pump for adjusting the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input corresponding to a respective one of the plurality of species and, in turn, creating a reagent mixture therefrom having a blood to lysing agent volumetric ratio corresponding to the operator input and respective species; and

a sensing unit coupled in fluid communication with the at least one pump and defining at least one counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture.

40. An apparatus as defined in claim 35, wherein the means for adjusting the volumetric ratio is defined by a control unit.

41. An apparatus for making a plurality of reagent mixtures for multi-species hematology testing, and for sensing particle distributions of the mixtures for multi-species hematology analysis, comprising:

first means for containing at least one lysing agent;

second means coupled in fluid communication with the first means for pumping the at least one lysing agent;

third means coupled in fluid communication with the second means for receiving the at least one lysing agent and a predetermined volume of a blood specimen corresponding to any one of a plurality of different species;

fourth means electrically coupled to the second means for adjusting the volumetric ratio of the blood specimen to the at least one lysing agent in correspondence with an operator input corresponding to a respective one of the plurality of species and, in turn, creating a reagent mixture therefrom having a blood to lysing agent volumetric ratio corresponding to the operator input and respective species; and

fifth means coupled in fluid communication with the second means for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture.

42. An apparatus as defined in claim 41, wherein the first means is defined by at least one reagent chamber for containing the at least one lysing agent.

43. An apparatus as defined in claim 41, wherein the second means is defined by at least one pump coupled in fluid communication with the first means for pumping the at least one lysing agent.

44. An apparatus as defined in claim 41, wherein the third means is defined by a mixing chamber coupled in fluid communication with the second means.

45. An apparatus as defined in claim 41, wherein the fourth means is defined by a control unit.

46. An apparatus as defined in claim 41, wherein the fifth means is defined by a sensing unit defining a counting orifice for receiving a reagent mixture and analyzing a particle distribution of the reagent mixture.